Long Exposure Photography

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What is Long Exposure Photography?

- Taking images with long (slow) shutter speeds typically > 30 seconds to provide creative ethereal effects.
- The process creates an average light value over the exposure time used.

Equipment Required

- Camera with Manual Mode
- Sturdy Tripod
- Neutral Density (ND) Filters
- Remote shutter trigger (with timer)
- Cloth with cleaning fluid to keep filters clean
- Exposure Calculator

Camera & Lens

Any camera is suitable that can operate in Manual Mode and has a Bulb Mode

Any lens is suitable in the 14-70mm range

Note: Make sure Battery is fully charged and have a spare with you!

Tripod

- Essential to ensure camera does not move over the exposure time which could be 3-4 minutes or longer!
- For beach photography spiked feet really help to keep tripod secure!

Neutral Density (ND) Filters

- 3 Main Types
  - Slide-in (Lee)
  - Kase Magnetic
  - Screw-in

F-Stop Reduction	Optical Density	Filter Factor	% transmittance
0	0	0	100
1	0.3	2	50
2	0.6	4	25
3	0.9	8	12.5
4	1.2	16	6.25
5	1.5	32	3.125
6	1.8	64	1.5625
7	2.1	128	0.78125
8	2.4	256	0.390625
9	2.7	512	0.1953125
10	3	1024 (sometimes called ND1000)	0.09765625
16	4.8	65536	0.001525879

What Filter Numbers mean

Lee Slide-in 100mm System

Lens Adapter to suit thread of face of lens

Note: Recommend Wide Angle version to minimise vignetting with wide angle lenses!

Filter Holder

Lee Slide-in Filters

Little Stopper – 6 stops
Big Stopper – 10 Stops
Super Stopper – 15 Stops

Note: Make sure foam seal side is closest to lens!

3 Stop ND Graduated Filter

Kase Magnetic Filter System

Lens Adapter to suit thread of face of lens

Kase 10 stop Magnetic Filter

Screw-in Filter

Screw in ND Filter

Note: Screw thread MUST suit thread on face of lens

Remote shutter trigger (with timer)

Remote trigger which plugs-into camera to control shutter

Need to ensure cable connector suits camera socket!

Its a BIG advantage to chose a trigger that has an a timer!

More expensive wireless triggers are available!

Cleaning Cloth & Fluid

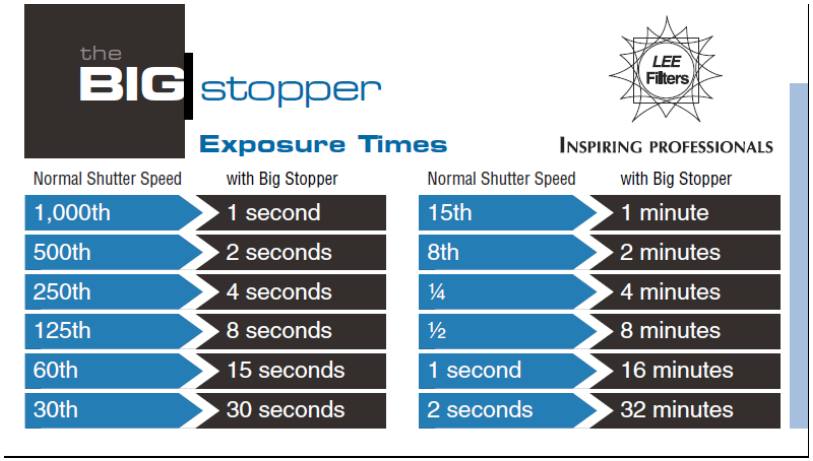
Microfiber Cleaning Cloth to remove salt spray from filter

Note: Remember to wash cloth after every trip!

Filter Cleaning Fluid

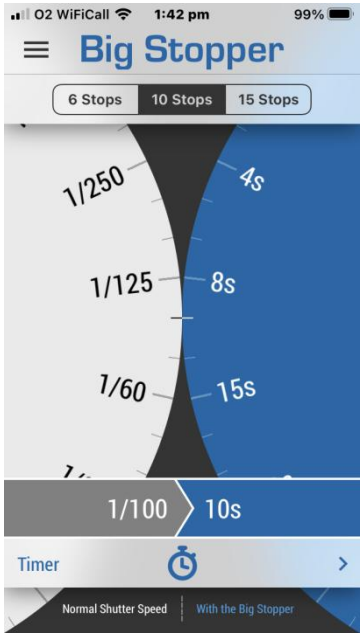
Exposure Calculator

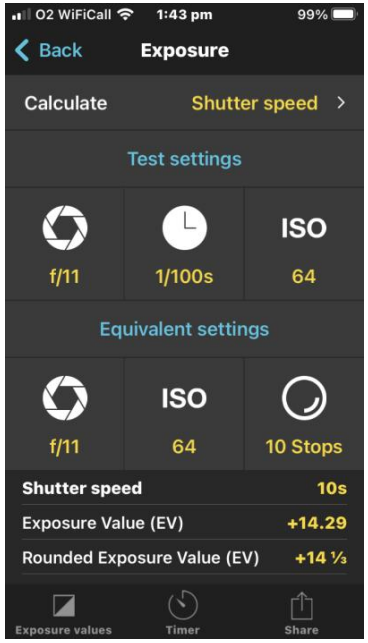
Simple Card supplied by filter manufacturer



Use an App on your Smart Phone

Lee Stopper App (free) or Photopills or other





Choosing A Location

Long Exposure effect works best when you have a static subject with moving water and clouds

- Examples:
  - Beach with groynes /breakwaters or rocks
  - Beach with a pier or jetty
  - Fast flowing river with rocks
  - Waterfalls

Other examples for creative long exposure photography

- Traffic Light Trails (no filters normally required)
- Big Wheel at the funfair
- Wind Turbine

Taking The Photo

1. Ensure tripod legs & head are fully locked and camera attached and level and remote shutter release fitted.
2. Compose image with NO filters attached (unless using ND Grad).
3. Set camera to MANUAL mode.
4. Turn off any vibration reduction options your lens or camera may have as it can adversely effect final exposure.
5. Set camera to low ISO (64 or 100).
6. Set focus point (I use single point focus about 1/3 into the image) & depress shutter button to focus camera and note exposure time for correctly exposed image. I normally use an aperture of F11 or F16.
7. Set lens switch to manual focus.
8. Attach filter.
9. Set exposure speed to BULB.
10. Set remote shutter release exposure time to calculated value from App or card.
11. On a standard DSLR camera you need to cover the eye piece with a cloth/tape or use eye piece cover if present as light can enter sensor and ruin final exposure. This step is NOT required for mirror-less cameras.
12. Start timer on remote shutter release and take the image being very careful not to move the tripod/camera!
13. Your image should now appear after desired exposure time!

Taking a Photo - Notes

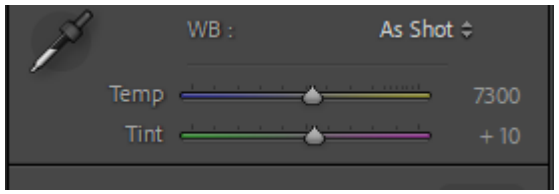
- I recommend you set your camera to take RAW images as this will help when your post processing.
- Some camera have a long exposure noise reduction option which I recommend you turn off as it doubles the time it takes to produce an image. Hot pixel spots can easily be removed in post processing using the Spot Healing Tool in Photoshop.
- If you don't have a remote shutter release you may be able to use TIME shutter setting which is available on some later cameras. The TIME option means when you depress the shutter button the shutter opens and then when you press the shutter button again it closes. You can use your stopwatch on your phone to determine shutter open time.
- In bight sunlight filters can be stacked to increase exposure time, e.g. Big Stopper (10 stop) + Little Stopper (6 stop) will increase exposure time by around 16 stops.
- You may find that the resulting image is over or underexposed due manufacturing tolerance on the filter coating or available light changing during exposure so you can experiment by increasing or reducing exposure time.
- Remember to check filter is clean between shots especially when taking seascape images with strong on-shore wind!

Post Processing

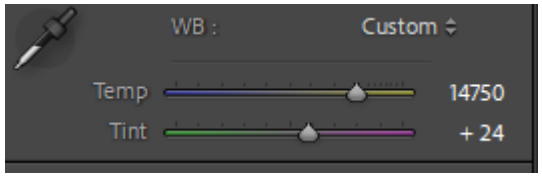
- You can make the normal post processing steps in your favourite post processing software such as Lightroom or Adobe Camera Raw.
- One important step is correcting white balance as most ND Filters either introduce a blue or brown colour cast to the images so this needs to be corrected in post processing.
- Always try creating a mono version of your image as long exposures work well in black & white!

Correcting White Balance

Image directly from camera with blue cast



Corrected White Balance using eye dropper tool in Lightroom



Coffee Break

Simulated Long Exposure using Photoshop

You can blend exposures together using Photoshop to create the effects of a longer exposure:

Take say 6 off 15 second exposures and blend to 6 x 15 = 90 second exposure.

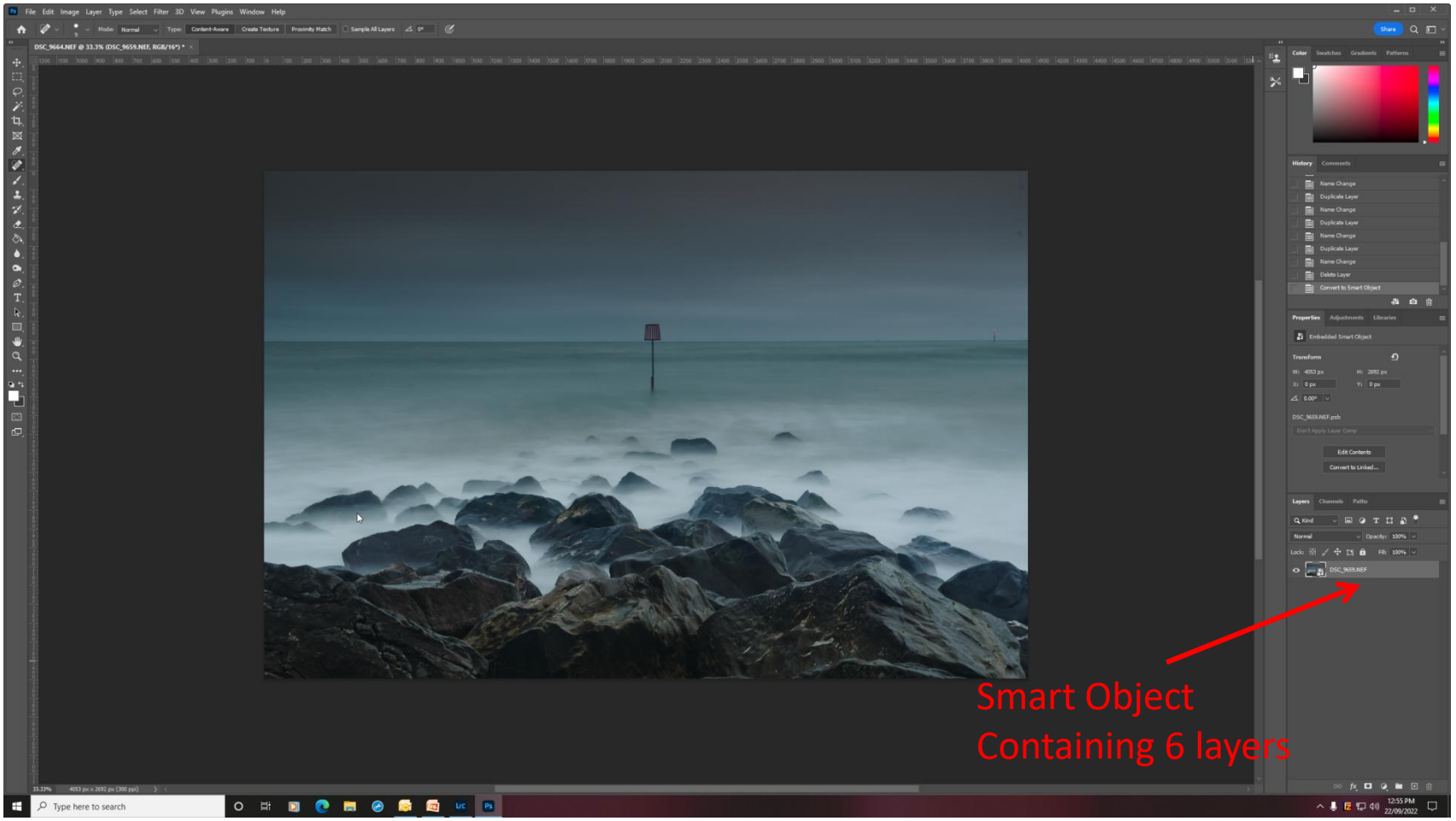
If you have no filters and can create a 2 second exposure you could take 45 images and blend them together to give a 90 second exposure!

Method

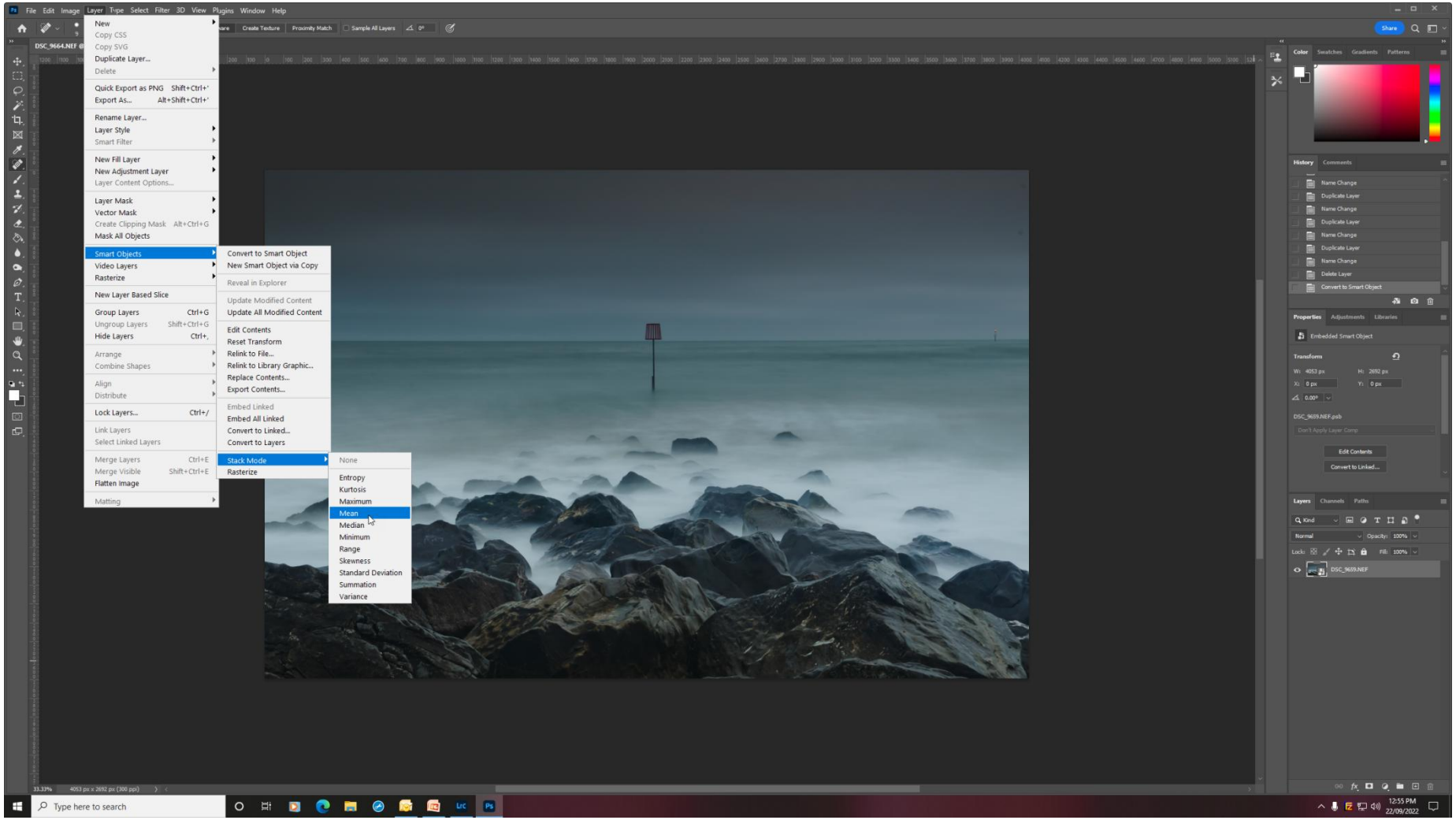
1. Read each separate image into a new layer in Photoshop by either using File- Scripts – Load Files into Stack or using Lightroom – Photo – Edit in – Open as Layers in Photoshop.
2. Select all layers
3. Convert Selected layers to a Smart Object
4. Then select Layers – Smart Objects – Stack Mode – Mean
5. Photoshop will then average all the selected layers and create new image!

Simulated Long Exposure

Due to on-shore wind creating salt spay on filters I created 6 off 15 second exposures and averaged to create a 90 second exposure

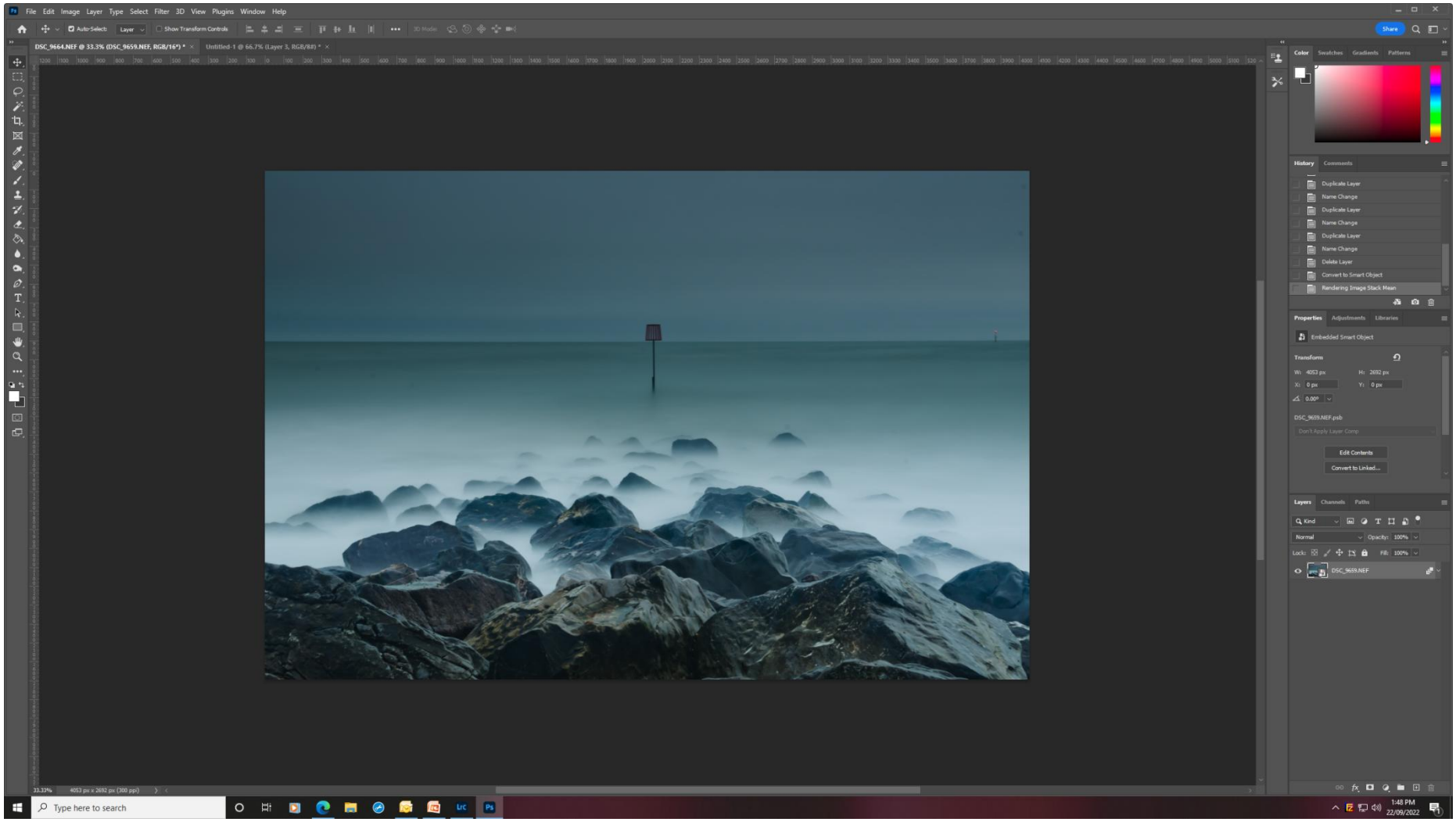


Simulated Long Exposure Image Averaging



Simulated Long Exposure Image Averaging

Final image after blending simulating a 90 second exposure

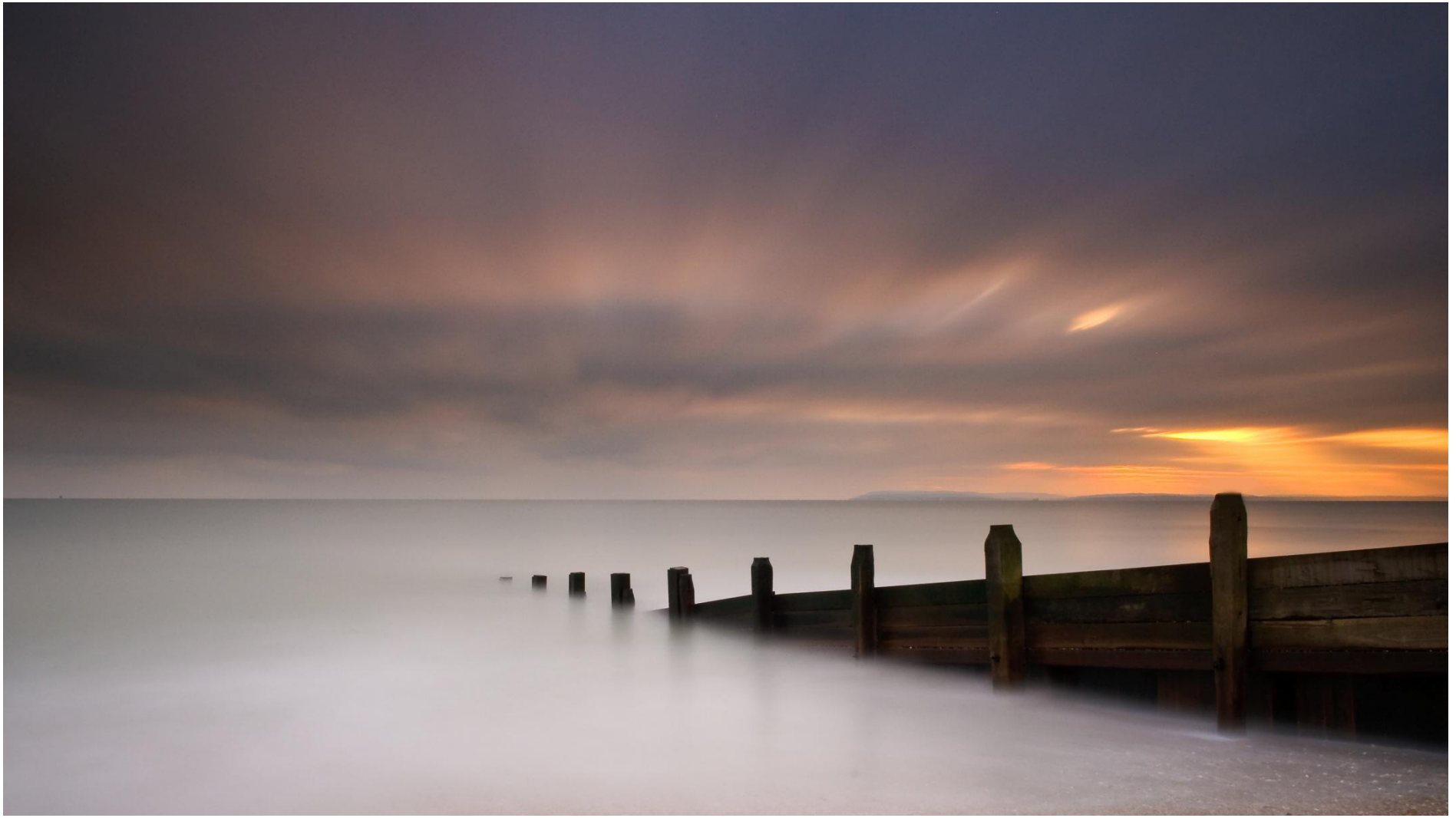


Example Images with Exposure Times

Exposure Time – 60 seconds

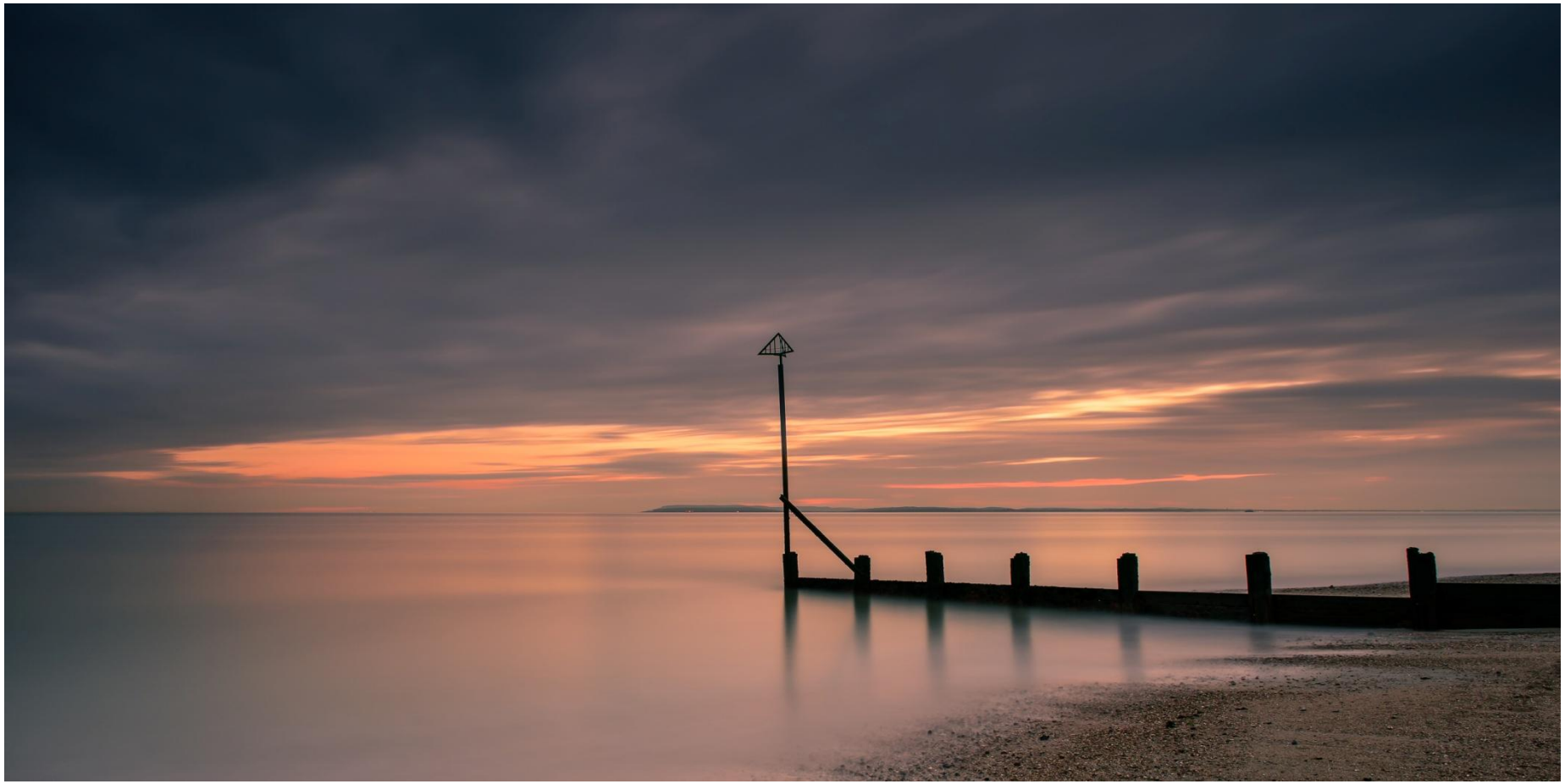
Exposure Time – 180 seconds

Exposure Time – 255 seconds



Exposure Time – 240 seconds

Exposure Time – 180 seconds



Exposure Time – 165 seconds

Exposure Time – 130 seconds

Exposure Time – 180 seconds

Exposure Time – 120 seconds

Exposure Time – 90 seconds (simulated by averaging 6 off 15 second exposures)

Exposure Time – 164 seconds

Exposure Time – 180 seconds

Exposure Time – 60 seconds

Exposure Time – 180 seconds

Exposure Time – 120 seconds

Exposure Time – 40 seconds

Exposure Time – 90 seconds

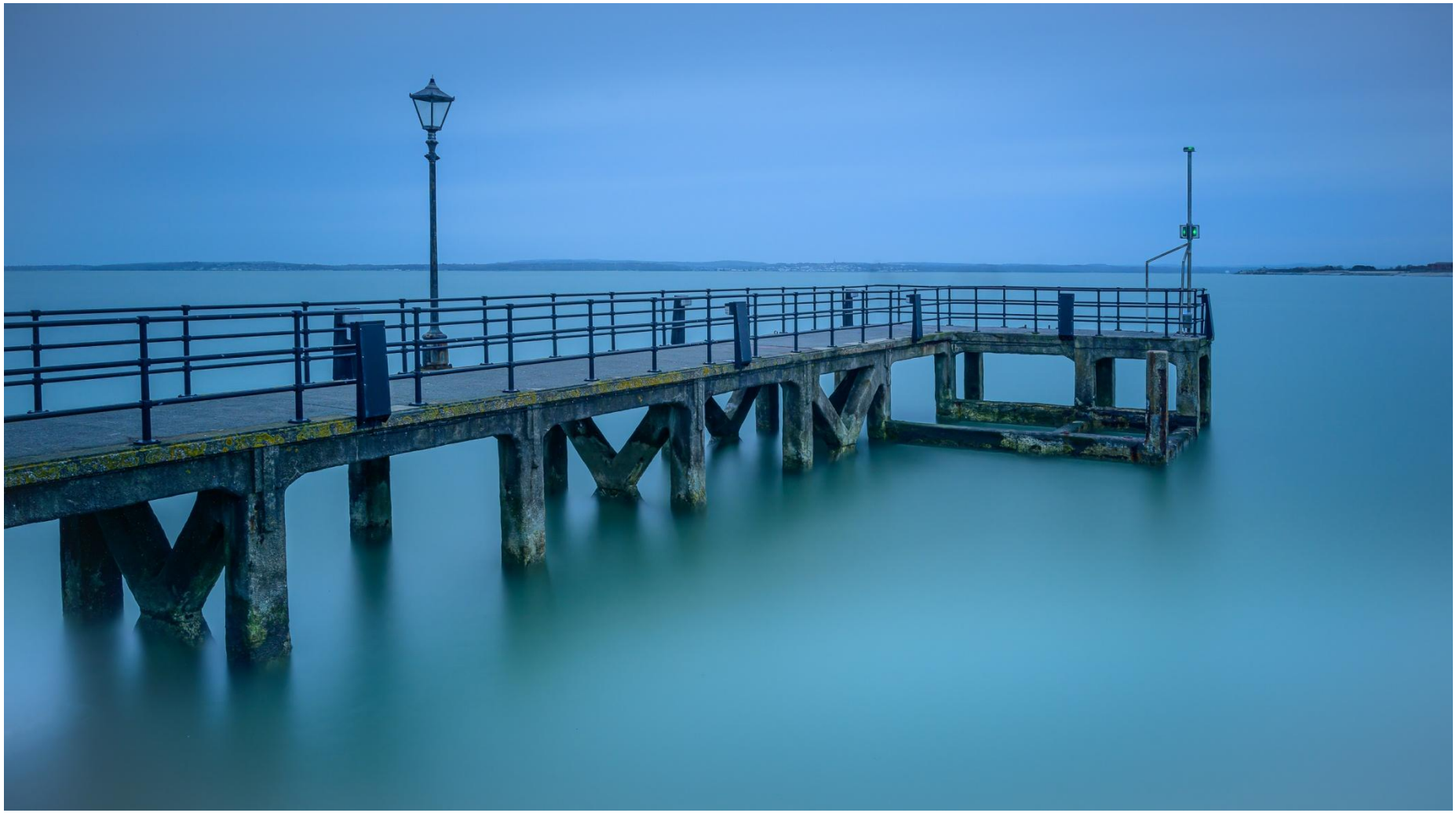
Exposure Time – 30 seconds

Exposure Time – 60 seconds

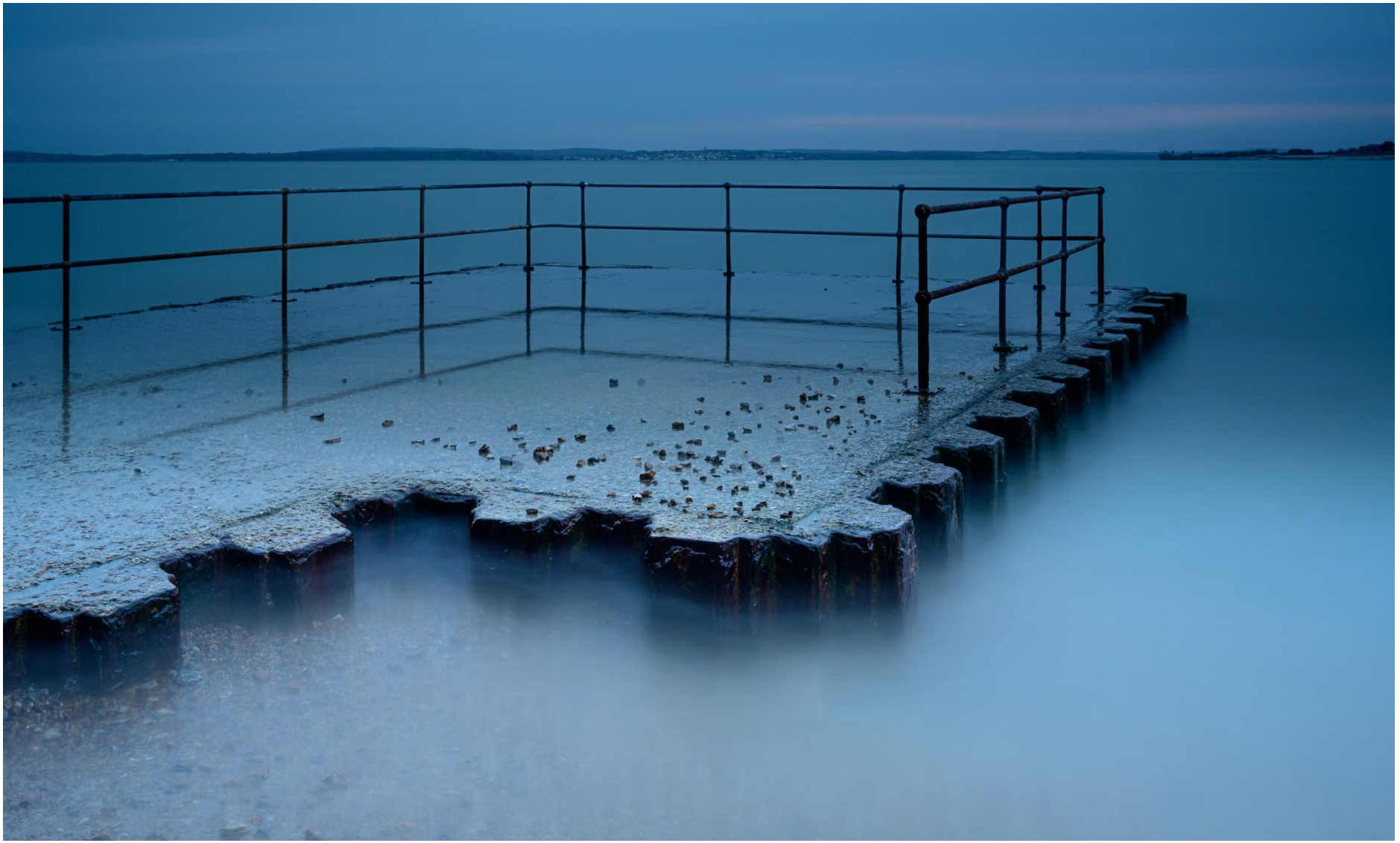
Exposure Time – 220 seconds

Exposure Time – 100 seconds

Exposure Time – 180 seconds



Exposure Time – 480 seconds



Exposure Time – 120 seconds

Exposure Time – 120 seconds

Exposure Time – 180 seconds

Exposure Time – 180 seconds

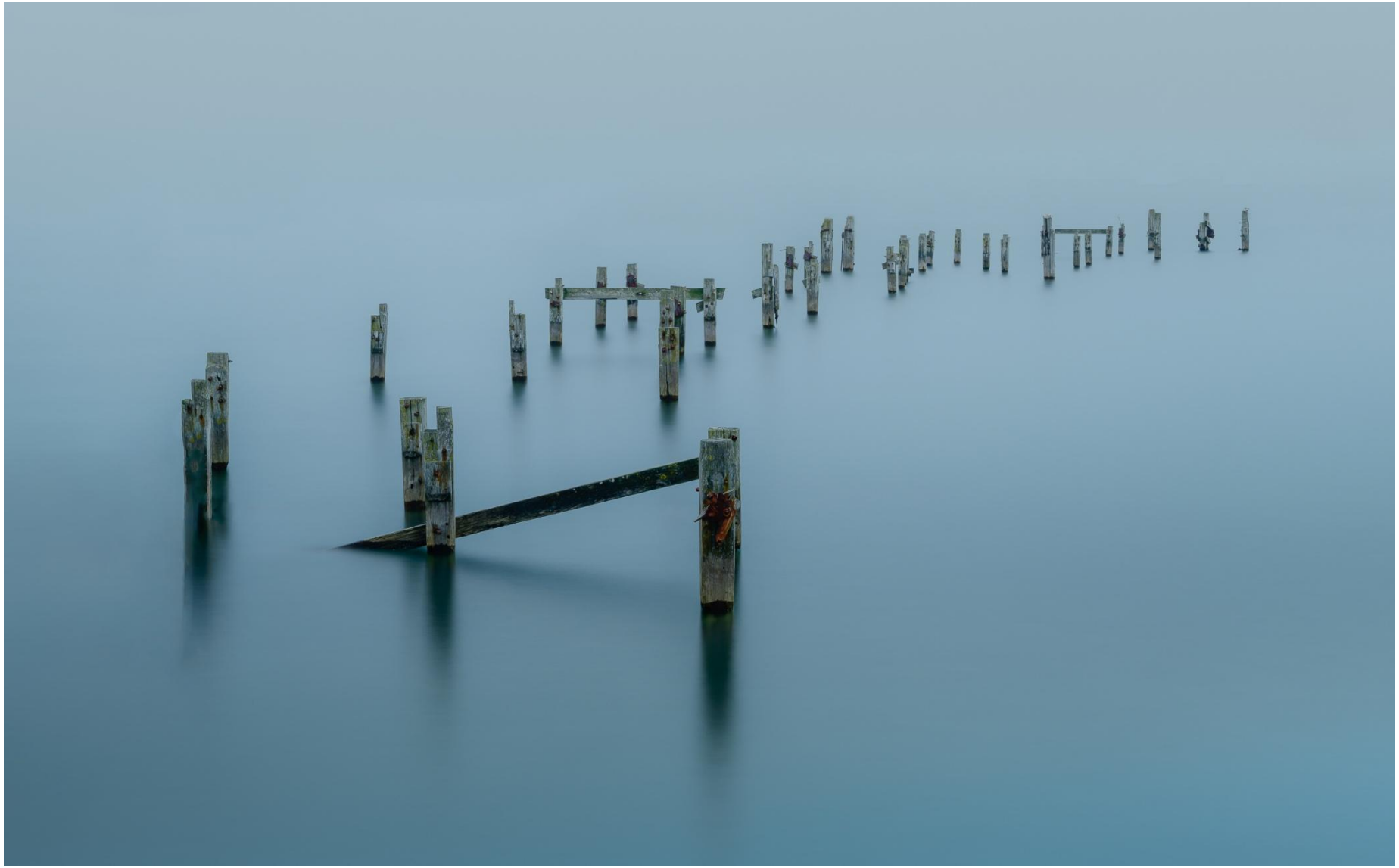
Exposure Time – 170 seconds

Exposure Time – 120 seconds

Exposure Time – 120 seconds

Exposure Time – 100 seconds

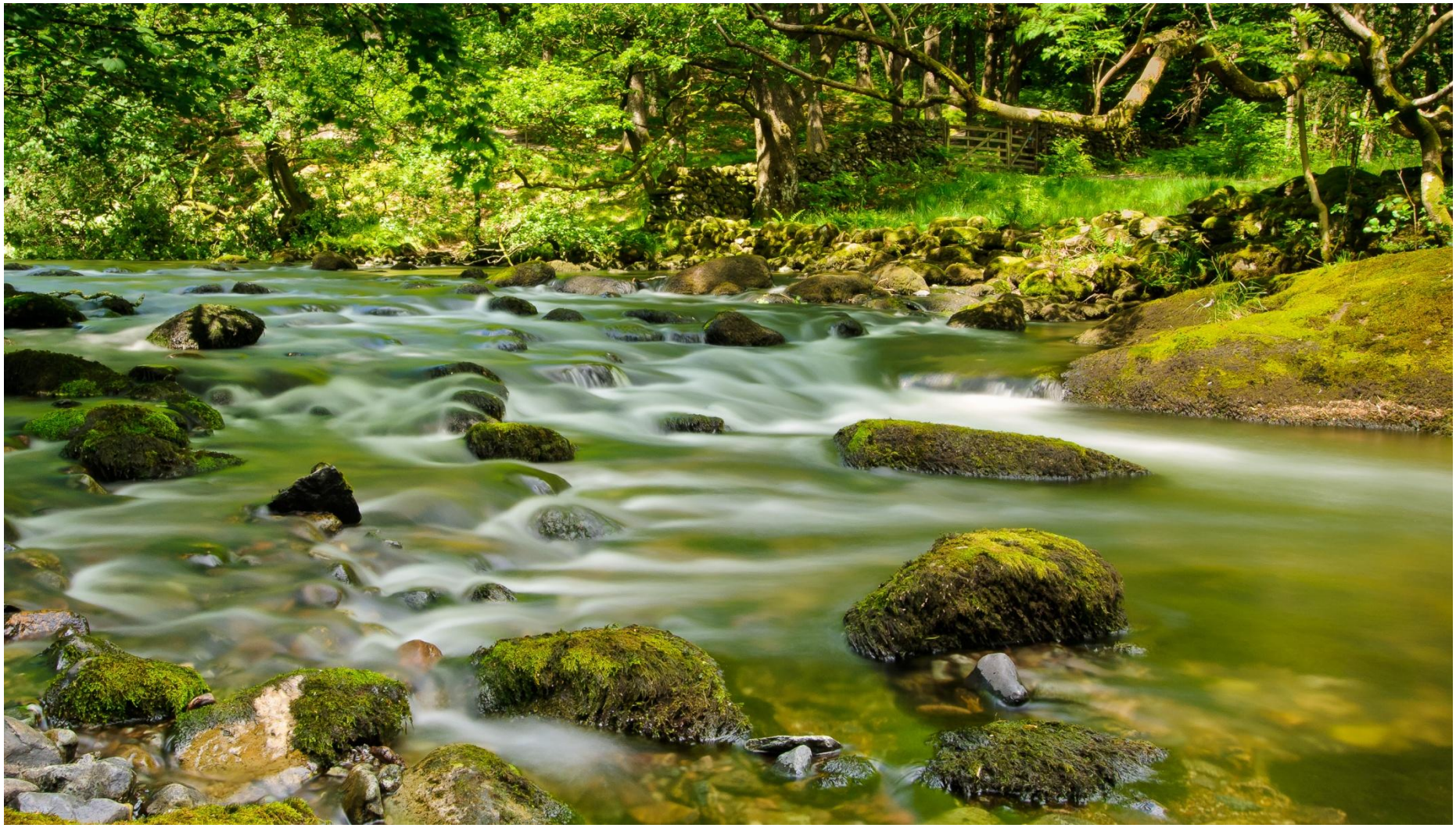
Exposure Time – 120 seconds



Exposure Time – 90 seconds

Exposure Time – 15 seconds

Exposure Time – 3 seconds



Exposure Time – 10 seconds

Exposure Time – 120 seconds

Exposure Time – 120 seconds

Video from YouTube by Jamie Windsor

who discusses Creative Long Exposure Photography

How to take CREATIVE LONG EXPOSURE photos - YouTube